

# MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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## INTRODUCTION.

The MONTHLY WEATHER REVIEW for February, 1899, is based on about 2,762 reports from stations occupied by regular and voluntary observers, classified as follows: 162 from Weather Bureau stations; numerous special river stations; 32 from post surgeons, received through the Surgeon General, United States Army; 2,385 from voluntary observers; 96 received through the Southern Pacific Railway Company; 29 from Life-Saving stations, received through the Superintendent United States Life-Saving Service; 31 from Canadian stations; 10 from Mexican stations; 7 from Jamaica, W. I. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Dr. Mariano Bárcena, Director of the Central Meteorological and Magnetic Observatory of Mexico; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kim-

ball, Superintendent of the United States Life-Saving Service; and Commander J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

## FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

During the first half of February the most remarkable cold wave, or series of cold waves, in the history of the Weather Bureau traversed the United States from the north Pacific to the south Atlantic coasts, damaging crops and fruits in the Southern States to the extent of millions of dollars. During the first eight days of the month the lowest temperatures on record were reported at points in the north Pacific coast States; from the 9th to the 12th many places in the Central, Western, and Northwestern States reported the coldest weather on record. During the 13th and 14th the cold wave overspread the Southern and Eastern States, attended, on the 13th, by the lowest temperatures on record from the southern Rocky Mountain slope to the south Atlantic coast, by zero temperatures to the Gulf coast of Alabama, and by a snowstorm of unprecedented severity in the Middle Atlantic States.

The visible cause of this period of intense cold is found in a series of barometric depressions in the South, combined with an area of high barometer of great magnitude which persistently occupied the British Northwest Territory until the 11th, inclusive, when the highest sea-level pressure ever reported within the region of observation covered by the Weather Bureau and Canadian services, 31.42 inches, was telegraphed from Swift Current, Assiniboia. After the 11th this area of high barometer settled southward over the eastern Rocky Mountain slope and the central valleys, causing the severest winter weather ever experienced generally over the southern

half of the country east of the Rocky Mountains. The meteorological conditions presented by the daily weather maps during the eastern and southern advance of the cold wave are shown on Charts X and XI. It will be observed, by a comparison of these maps with the Weather Bureau forecasts and warnings issued, that ample and timely warning of the advance of the cold wave was given to all interests that were likely to be injuriously affected by intense cold. It will also be noted that special reports and newspaper comments made in connection with the cold-wave visitation give unquestionable evidence that the warnings prompted protective measures, whereby crops, live stock, and perishable goods and merchandise to the value of hundreds of thousands of dollars were saved.

As early as the evening of February 10, Santa Fe, Oklahoma, and stations in the interior of Texas were notified of the approach of a severe cold wave. On the 11th cold-wave signals were ordered for the Texas coast, New Orleans, Mobile, Meridian, Pensacola, Atlanta, and Montgomery, and the warnings were distributed throughout the States represented by the stations named. Jacksonville, Fla., was advised on the 11th that freezing temperature would probably occur over the northern third of Florida Sunday night.

On the morning of the 12th the truck-growing centers about Galveston, Tex., were notified, by telegraph and telephone, that a hard freeze was indicated for Sunday night and that